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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,528	04/15/2004	Kwok Wai Cheung	IPVBP005	2161

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EXAMINER	
BLAIR, KILE O	

ART UNIT	PAPER NUMBER
4114	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,528	CHEUNG ET AL.	
	Examiner	Art Unit	
	Kile O. Blair	4114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 18-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 18-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :1/21/05, 2/22/05, 8/11/05, 1/12/07 and 6/29/07.

DETAILED ACTION

1. In response to the Preliminary Amendment filed on December 09, 2004, claims 11-17 have been cancelled, claims 1-10 and the newly added claims 18-33 are pending.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The terms "data store", "user hearing profile", "audio output apparatus", and "audio characteristic" lack antecedent basis in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 1-10 and 18-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. It is requested that the applicant make a statement with respect to new matter in the amended claims and the new claims.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is indefinite as to what is receiving audio signals at a wireless audio adapter and also indefinite as to where the specific node is in the system that is referred to as "at the wireless audio adapter."

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 5-10 and 18-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Allen et al. (US Pub. No. 2002/0149705).

Regarding claim 1, Allen et al. teaches a system for enhancing an audio system (the set top box and hybrid communicator/ remote control, see Fig. 3, 102 and Fig. 2, 106), the audio system delivers audio output to an audio output terminal (telephony circuit which is connected to transmitter and can output audio signals to transmitter, see Fig. 3, 303 and [0071]), said system comprising: a wireless transmitter that connects to the audio output terminal to receive the audio output and wirelessly transmits signals corresponding to the audio output (wireless transmitter, Fig. 3, 202); and a personal audio device usable by a user to hear the audio output (hybrid communicator/ remote control, Fig. 2, 106), said personal audio device including at least: a

wireless receiver capable of receiving the wirelessly transmitted signals by said wireless transmitter (receiver, Fig. 2, 204); a controller operatively connected to said wireless receiver (volume buttons, Fig. 2, 220), and a speaker operatively connected to said controller(hybrid communicator/ remote control speaker, Fig. 2, 242). Wherein said system further includes a data store for storing user information (hybrid communicator/ remote control or the set top box 102, both of which can store contacts in certain embodiments, [0059]), wherein said system, generates a customized audio output based on the audio output and the user information (a digital audio sample of a contact's spoken name found on list, Fig. 2, 252, [0096]), and wherein said speaker produces an audio sound output in accordance with the customized audio output (playback of the digital audio sample of a contact's spoken voice [0096]). In addition, Allen et al. also teaches that the described features, structures, or characteristics may be combined in any suitable manner in one or more embodiments (see [0028]). Therefore, any features from one embodiment of the invention are inherently existent in another embodiment where said features may be combined in a suitable manner.

Regarding claim 2, Allen et al. teaches a system as recited In claim 1, wherein said data store is included in said personal audio device wherein said controller operatively connects to said data store (hybrid communicator/ remote control or the set top box 102, both of which can store contacts in certain embodiments, [0059]), and wherein said controller operates to produce the customized audio output based on the audio output and the user information (playback of the digital audio sample of a contact's spoken voice [0096]).

Regarding claim 5, Allen et al. teaches a system as recited in claim 1, wherein the user information comprises at least one user preference (The user information component of the hybrid communicator/ remote control can store user preferences [0082]).

Regarding claim 6, Allen et al. teaches a system as recited in claim 1, wherein said personal audio device further obtains environmental information pertaining to the vicinity of said personal audio device, and wherein the customized audio output is further dependent on the environmental information (Retraining of noise cancellation module 908 based on the acoustics of the room can be done automatically by the device, [0126]; Noise cancellation module may be implemented within the hybrid communicator/ remote control, [0124]).

Regarding claim 7, Allen et al. teaches a system as recited in claim 6, wherein the environmental information includes at least a noise level, and wherein the volume of the audio sound output is dependent on the noise level (noise generator may generate a white noise which will then be used to modify the adaptive filter to improve noise cancellation affecting the audio sound output).

Regarding claim 8, Allen et al. teaches a system as recited in claim 6, wherein said personal audio device further comprises: at least one environmental sensor that acquires the environmental information (microphone of the hybrid communicator/ remote control, [0127]; see Fig. 2, 244).

Regarding claim 9, Allen et al. teaches a system as recited in claim 6, wherein the environmental information is determined based on a position of said personal audio device or the user (the microphone (Fig. 2, 270) mounted on a boom of the headset (Fig. 2, 264) connected to

the hybrid communicator/ remote control that is used to reduce television audio interference by placing the microphone closer to the user's mouth, [0050]).

Regarding claim 10, Allen et al. teaches a system as recited in claim 1, wherein said data store is included in said wireless transmitter, and for enhancing on, wherein said wireless transmitter operates to produce the customized audio output based on the audio output and the user information (The hybrid communicator/ remote control is a wireless transmitter and it includes a data store for storing contacts [0059]. The hybrid communicator/ remote control operates to produce a verbal identifier based on audio output and user information in data store [0024]).

Regarding claim 18, Allen et al. teaches a system as recited in claim 1, wherein the audio system is an entertainment system (The audio system can be used with a television set for entertainment; Fig. 1, 104).

Regarding claim 19, Allen et al. teaches a system as recited in claim 1, wherein said data store is portable and removable from said system (The hybrid communicator/ remote control including data store is able to be removed from the system; Fig 1, 106).

Regarding claim 20, Allen et al. teaches a system as recited in claim 1, wherein said personal audio device is wearable by the user (The hybrid communicator/ remote controller shown in figure 2 is able to be worn by placing the headset {264} on the user's head).

9. Claims 21-27 and 29-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Breed et al. (US Pub. No. 2001/0038698).

Regarding claim 21, Breed et al. teaches a system for enhancing an audio system (Arrangement and method for controlling audio reception by occupants of a vehicle, see abstract), the audio system delivers audio output to an audio output terminal, said system comprising: a wireless transmitter that connects to the audio output terminal to receive the audio output and wirelessly transmits signals corresponding to the audio output (the radio station which wirelessly transmits signals corresponding to the audio output of the source device (e.g. CD player, personal computer, tape player) of the radio program [0136]); and a personal audio device usable by a user to hear the audio output (entertainment system comprising speakers which generate actual audio frequencies including audio output from radio station[0136]), said personal audio device including at least: a wireless receiver capable of receiving the wirelessly-transmitted signals by said wireless transmitter(although not explicitly stated in Breed et al., it is inherent that there is an antenna or other wireless receiver in the vehicle capable of receiving the wirelessly-transmitted signals because the vehicle has a radio [0136]); a controller operatively connected to said wireless receiver(the speakers associated with each seating position can be controlled to provide music from the respective radio station [0136]); and a directional speaker operatively connected to said controller, said speaker produces a directional audio sound output in accordance with the audio output, wherein the directional audio sound output is an audio sound output that is directionally constrained (The speakers could be automatically directed or orientable so that at least one speaker directs sound toward each occupant present in the vehicle. Speakers which cannot direct sound to an occupant would not be activated. Although not explicitly stated as directional speakers, it is inherent that the speakers operatively connected to a controller are directional because speakers which cannot direct sound to an occupant would not

be activated and therefore the speakers operatively connected to the controller must be directional in order for the system of Breed et al. to be operational [0136]).

Regarding claim 22, Breed et al. teaches a system as recited in claim 21, wherein the signals driving the speaker are ultrasonic drive signals that are supplied to said directional speaker for output of the directional audio sound output (The sound generating means may utilize hypersonic sound, e.g., comprise one or more pairs of ultrasonic frequency generators for generating ultrasonic waves whereby for each pair, the ultrasonic frequency generators generate ultrasonic waves which mix to thereby create new audio frequencies [0067]).

Regarding claim 23, Breed et al. teaches a system as recited in claim 21, wherein the directional audio sound output by said directional speaker is substantially confined to a predetermined direction plus or minus 15 degrees (ultrasonics used in a microphone having a 15 degree cone angle and the use of directional speakers in a similar manner [0144]).

Regarding claim 24, Breed et al. teaches a personal audio device usable by a user to hear audio sound (entertainment system comprising speakers which generate actual audio frequencies including audio output from radio station [0136]), said personal audio device comprising: a controller for transforming audio data into speaker drive signals (the speakers associated with each seating position can be controlled to provide music from the respective radio station [0136]); and a directional speaker operatively connected to said controller, said speaker produces a directional acoustic output in accordance with the speaker drive signals, the directional acoustic output being an audio sound output that is directionally constrained (The speakers could be automatically directed or orientable so that at least one speaker directs sound toward each occupant present in the vehicle. Speakers which cannot direct sound to an occupant would not be

activated. Although not explicitly stated as directional speakers, it is inherent that the speakers operatively connected to a controller are directional because speakers which cannot direct sound to an occupant would not be activated and therefore the speakers operatively connected to the controller must be directional in order for the system of Breed et al. to be operational [0136]).

Regarding claim 25, Breed et al. teaches a device as recited in claim 24, wherein said personal audio device further comprises: a wireless receiver capable of receiving the audio data that are transmitted to said personal audio device by a wireless transmitter (although not explicitly stated in Breed et al., it is inherent that there is an antenna or other wireless receiver in the vehicle capable of receiving the wirelessly-transmitted signals because the vehicle has a radio [0136]).

Regarding claim 26, Breed et al. teaches a device as recited in claim 24, wherein the speaker drive signals are ultrasonic drive signals that are supplied to said directional speaker for output of the directional acoustic output (The sound generating means may utilize hypersonic sound, e.g., comprise one or more pairs of ultrasonic frequency generators for generating ultrasonic waves whereby for each pair, the ultrasonic frequency generators generate ultrasonic waves which mix to thereby create new audio frequencies [0067])..

Regarding claim 27, Breed et al. teaches a device as recited in claim 24, wherein, when said controller produces the speaker drive signals, said controller takes into consideration an audio characteristic of the user (The monitoring system determines audio characteristics of the user such as their size so that the speaker drive signals can be adjusted to improve sound quality [0129]).

Regarding claim 29, Breed et al. teaches a method for providing audio sound output from an audio output apparatus to a user in a wireless manner, said method comprising: receiving audio signals at a wireless audio adapter (the transmitter which is inherently part of the radio station, [0136]) that is attached to an audio output port of the audio output apparatus, the audio signals being provided by the audio output apparatus via the audio output port (audio source device (e.g. CD player, personal computer, tape player) of radio station, [0136]); wirelessly transmitting the audio signals to a personal audio device that has a directional speaker (entertainment system that comprises speakers that can direct sound, [0136]); and producing audio sound output using the directional speaker, the audio sound output being based on the audio signals, and the audio sound output being in a directionally constrained manner (directional speakers that output signals from radio station to individual occupants of vehicle based on the radio station that is stored as a preference for their seating location, [0136]).

Regarding claim 30, Breed et al. teaches a method as recited in claim 29, wherein said producing comprises: generating ultrasonic drive signals based on the audio signals for the directional speaker (The sound generating means may utilize hypersonic sound, e.g., comprise one or more pairs of ultrasonic frequency generators for generating ultrasonic waves whereby for each pair, the ultrasonic frequency generators generate ultrasonic waves which mix to thereby create new audio frequencies [0067]).

Regarding claim 31, Breed et al. teaches a method as recited in claim 29, wherein said producing comprises obtaining user information pertaining to a user of the personal audio device, wherein the audio sound output being produced is further based on the user information

(enabling occupants to store music preferences such a radio station presets and then producing audio output from that radio station; [0136]).

Regarding claim 32, Breed et al. teaches a method as recited in claim 31, wherein the user information comprises an audio characteristic associated with the user (enabling occupants to store music preferences, [0136]).

Regarding claim 33, Breed et al. teaches a method as recited in claim 29, wherein said producing comprises obtaining at least one environmental characteristic pertaining to the vicinity of the personal audio device, wherein the audio sound output being produced is further based on the at least one environmental characteristic (the vehicle interior monitoring system that provides information to the entertainment system including environmental characteristics such as the number and position of vehicle occupants and where the sound output being produced is based on those characteristics, [0129]).

Claim Rejections - 35 USC § 103

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (US Pub. No. 2002/0149705) in view of Breed et al. (US Pub. No. 2001/0038698).

Regarding claim 3, It is noted that the teaching of Allen et al. does not specifically disclose the limitation of using ultrasonic drive signals in a directionally constrained manner based on the audio output as required. However, Breed teaches a system that directs sound to specific users using hypersonic sound. Allen et al. teaches that the set top box (702) may be specifically designed to project and receive sound over great distances with a comparatively small amount of feedback and interference (Allen et al., [0113]). Hence, at the time of the applicant's invention, it would have been obvious to one of ordinary skill in the art to modify the system of Allen et al. with the feature of hypersonic signals sent to a directional speaker as

disclosed by Breed et al. [0122 and 0123] as directional speakers driven by hypersonic signals were known in the art and commercially available at the time.)

Regarding claim 4, it is noted that Allen et al. does not specifically disclose the limitation of including a user hearing profile in the user information. However, Breed et al. teaches a system that gathers hearing information such as the position of the occupants and radio station preferences of individual occupants (Breed et al., abstract and [0136]). It would have been obvious for one of ordinary skill in the art to add the feature of collecting user hearing information to create a user hearing profile to the system of Allen et al..

13. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breed et al. in view of Rodewald et al. (US Pub. No. 2002/0005777).

Regarding claim 28, Breed et al. teach a device as recited in claim 27, wherein the audio characteristic is provided to said personal audio device by a removable, portable data storage device that can operatively connect to said personal audio device (Similar systems located to monitor the remaining seats in the vehicle, also determine the presence of occupants (audio characteristic) at the other seating locations and this result is stored in the computer memory which is part of each monitoring system processor; Breed et al., [0108]). It is noted that Breed et al. does not explicitly disclose the feature of a storage medium that is removable and portable. However, Rodewald et al. teaches a portable data storage medium (portable data storage device that stores individual driver data; Rodewald et al., [0021]). In addition, it is the examiner position that applicant claims a removable, portable storage medium for the personal audio device, which is a simple substitution for the storage medium of Breed et al. This substitution

would have been obvious to one of ordinary skill in the art at the time of the invention and would have yielded predictable results.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

American Technology Corporation discusses "HyperSonic Sound Technology" to provide directionally constrained audio signals. Trajkovic et al. (US Pub. No. 2002/0141599) discusses noise cancellation that takes into account characteristics of the surrounding environment [0009].

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile O. Blair whose telephone number is (571) 270-3544. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe H. Cheng can be reached on (571) 272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JOE H. CHENG
SUPERVISORY PATENT EXAMINER

KB